

Application Number 10/770,113
Amendment in response to Office Action mailed November 21, 2007

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AMENDMENTS TO THE CLAIMS

FEB 21 2008

This listing of claims will replace all prior versions and listings of claims in the application.

Listing of Claims:

Claim 1 (Currently Amended) A method comprising:

automatically executing a service discovery protocol on a first customer premise device of a customer site network to communicate communicating service related characteristics associated with the [[a]] first customer premise device from the first customer premise device to a first public router of a service provider network, where the service related characteristics include information corresponding to a shared service provided by a service provider; and
in response to receiving the service related characteristics at the first public router of the service provider network, executing the service discovery protocol on the first public router to issue a plurality of queries to a plurality of other public routers of the service provider network to request identification information that identifies any other customer premise devices that are connected to those other public routers and that share the same service related characteristics as the first customer premise device;

in response to the queries, executing the service discovery protocol on the first public router to receive the identification information from at least two different ones of the other public routers of the service provider network, the information identifying the customer premise devices that are connected to the at least two different public routers and that share the same service related characteristics as the first customer premise device;

executing the service discover protocol to communicate from the first public router to the first customer premise device the identification information obtained about the other customer premise devices that share receiving, at the first customer premise device, information associated with at least one other customer premise device that shares the service related characteristics; and

configuring the first customer premise device in accordance with the service related characteristics and the information obtained about the other customer premise devices to join the first customer premise device to the shared service.

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Claim 2 (Cancelled)

Claim 3 (Currently Amended) The method of claim 1 ~~[[2]]~~, wherein the service comprises at least one of an active performance measurement service~~[[s]]~~, an inventory management service, a device management service~~[[s]]~~, a Quality of Service (QoS) service, a security service~~[[s]]~~, and a service level agreement~~[[s]]~~.

Claim 4 (Currently Amended) The method of claim 1, wherein the service is a virtual private network service.

Claim 5 (Currently Amended) The method of claim 4, wherein the service related characteristics comprise at least one of a customer site identification, a virtual private network identification, a topology of a virtual private network, customer premise device information, an Internet Protocol address, quality of service information, a device virtual private network status, and a type of virtual private network.

Claims 6-8 (Cancelled)

Claim 9 (Currently Amended) The method of claim 1, ~~further comprising wherein~~ communicating service related characteristics from the first customer premise device to the first public router of a service provider network further comprises periodically communicating the service related characteristics from the first customer premise device to the first public router.

Claim 10 (Currently Amended) The method of claim 1, ~~further comprising wherein~~ communicating service related characteristics from the first customer premise device to the first public router of a service provider network further comprises communicating the service related characteristics from the first customer premise device to the first public router other devices upon a receiving a service configuration update.

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Claim 11 (Cancelled)

Claim 12 (Currently Amended) The method of claim 1 ~~[[11]]~~, further comprising:
communicating the service related characteristics information associated with the first customer premise device to the ~~at least one~~ other customer premise devices that share the same service related characteristics; and
updating the configuration information of the shared service at the other customer premise devices to reflect the addition of the first customer premise device to the shared service.

Claim 13 (Cancelled)

Claim 14 (Currently Amended) A method comprising:
receiving, with a first public router of a service provider network, a communication from a first customer premise device of a customer site network that network device for establishing a service, wherein the communication includes service related characteristics are associated with the first customer premise and correspond to a shared service provided by a service provider of the service provider network network device;
querying, with the first public router, a plurality of other public routers to obtain network devices to discover information about at least one other customer premise device that shares the same network device associated with the service related characteristics as the first customer premise device; and
communicating the discovered information about the at least one other customer premise device to the first customer premise network device; and
configuring the service based on the service related characteristics and the discovered information.

Claim 15 (Original) The method of claim 14, wherein receiving a communication comprises receiving a communication in accordance with a service discovery protocol.

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Claim 16 (Currently Amended) The method of claim 14, wherein the service is a virtual private network service.

Claim 17 (Currently Amended) The method of claim 14, wherein the service comprises at least one of an active performance measurement service[[s]], an inventory management service[[s]], a device management service[[s]], a Quality of Service (QoS) service, a security service[[s]], and a service level agreement[[s]].

Claim 18 (Currently Amended) A network device of a service provider network, the device comprising a control unit that implements a service discovery protocol to receive a communication from a first customer premise device of a customer site network that includes automatically communicate service related characteristics associated with the first customer premise network device, querying a plurality of other public routers of the service provider network to obtain information about at least one other customer premise device that shares the same service related characteristics as the first customer premise device, and communicate the to receive discovered service information obtained about the at least one other customer premise device to the first customer premise device associated with other network devices based on the service related characteristics.

Claim 19 (Currently Amended) The network device of claim 18, wherein the control unit automatically updates ~~configures~~ a configuration of a shared service of the network device based on the service related characteristics and the ~~discovered service~~ information.

Claim 20 (Currently Amended) The network device of claim 19, wherein the shared service comprises at least one of an active performance measurement service[[s]], an inventory management service[[s]], a device management service[[s]], a security service[[s]], and a service level agreement[[s]].

Claim 21 (Currently Amended) The network device of claim 19, wherein the service is a virtual private network service.

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Claim 22 (Original) The network device of claim 21, wherein the service related characteristics comprise at least one of a site identification, a virtual private network identification, a topology of a virtual private network, customer premise device information, Internet Protocol address, quality of service information, device virtual private network status, and type of virtual private network.

Claims 23-29 (Cancelled)

Claim 30 (Currently Amended) A customer premise network device of a customer site network, the device comprising a control unit that includes:
a communication manager that automatically communicates service related characteristics associated with the customer premise device to a first public router of a service provider network and receives discovered service information about concerning at least one other customer premise device that shares the service related characteristics from the first public router, wherein the information about the at least one other customer device is obtained by the first public router by querying a plurality of other public routers of the service provider network; and
a service manager that configures the customer premise device in accordance with the service related characteristics and the information obtained about the other customer premise devices to join the customer premise device to a shared service.

Claim 31 (Currently Amended) The network device of claim 30, wherein the communication manager operates in accordance with further comprising a service discovery protocol to communicate through which the service related characteristics associated with the customer premise device and obtain discovered service information about the at least one other customer premise device that shares the service related characteristics are obtained and communicated and received.

Claim 32 (Cancelled)

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Claim 33 (Currently Amended) The ~~network~~ device of claim 30 ~~[[32]]~~, wherein the service is a virtual private network service.

Claim 34 (Currently Amended) The ~~network~~ device of claim 30 ~~[[32]]~~, wherein the service comprises at least one of an active performance measurement service~~[[s]]~~, an inventory management service~~[[s]]~~, a device management service~~[[s]]~~, a Quality of Service (QoS) service, a security service~~[[s]]~~, and a service level agreement~~[[s]]~~.

Claim 35 (Currently Amended) The ~~network~~ device of claim 30, wherein the customer premise network device comprises a router.

Claim 36 (Currently Amended) The ~~network~~ device of claim 30, further comprising wherein a management interface that receives the service related characteristics from a human administrator and stores sends the service related characteristics within to the network customer premise device.

Claim 37 (Currently Amended) A computer-readable medium comprising instructions to cause a processor to:

receive, with a first public router of a service provider network, a communication from a first customer premise device of a customer site network that includes automatically-
~~communicate~~ service related characteristics associated with the ~~[[a]]~~ first customer premise device; ~~[[and]]~~

query, with the first public router, a plurality of other public routers to obtain information about at least one other customer premise device that shares the same service related characteristics as the first customer premise device; and

communicate receive, with the first public router at the first customer premise device in response to the service-related characteristics, the service information obtained for associated-
with the at least one other customer premise device to the first customer premise device that shares the service-related characteristics.

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Claim 38 (Cancelled)

Claim 39 (Currently Amended) The computer-readable medium of claim 38, wherein the service comprises at least one of active an active performance measurement service[[s]], an inventory management service[[s]], a device management service[[s]], a Quality of Service (QoS) service, a security service[[s]], and a service level agreement[[s]].

Claim 40 (Currently Amended) The computer-readable medium of claim 38, wherein the service is a virtual private network service.

Claim 41 (Cancelled)

Claim 42 (Currently Amended) The computer-readable medium of claim 37, further comprising instructions to cause a processor to:
receive a query from one of the plurality of other public routers to obtain information about any customer premise devices coupled to the first public router that have the same service related characteristics included in the query; and
sending a response to the query that includes ~~communicate service~~ information regarding at least the first customer premise device to the querying public router ~~at least one other customer premise device~~.

Claim 43 (Currently Amended) The computer-readable medium of claim 42, further comprising instructions to cause a processor to communicate the service related characteristics included in the query to ~~update a service configuration based on the service information~~ ~~regarding~~ the first customer premise device.

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Claim 44 (New) The method of claim 1, wherein executing the service discovery protocol on the first public router to issue a plurality of queries comprises outputting the plurality of queries in accordance with the service discovery protocol to query each of the plurality of other public routers of the public network.

Claim 45 (New) The method of claim 44, further comprising:
upon receiving the queries with the other public routers, identifying, with each of the other public routers, the customer premise devices coupled to the respective other public routers that have the same service related characteristics as included in the query from the first public router; and
executing the service discovery protocols with the other public routers to send, with each of the other public routers, a response to first public router that includes the identification information associated with customer premise devices that were identified as sharing the service related characteristics included in the query.

Claim 46 (New) The method of claim 1, further comprising automatically configuring, with the first customer premise device, performance measurement sessions between the first customer premise device and each of the other customer premise devices identified as sharing the same service related characteristics.

Claim 47 (New) The method of claim 14, further comprising:
storing, with the first public router, service related characteristics associated with the first customer premise device;
receiving, with the first public router, a query from one of the plurality of other public routers to obtain information about any customer premise devices coupled to the first public router that have the same service related characteristics as included in the query; and
sending a response to the query that includes information associated with at least the first customer premise device to the querying public router.

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Claim 48 (New) The method of claim 47, further communicating the service related characteristics included in the query to the first customer premise device.

Claim 49 (New) The network device of claim 18, further comprising a data structure to store the service related characteristics associated with the first customer premise device, wherein the control unit receives a query from one of the plurality of other public routers to obtain information about any customer premise devices coupled to the first public router that have the same service related characteristics as included in the query and sends a response to the query that includes information associated with at least the first customer premise device to the querying public router.

Claim 50 (New) The network device of claim 49, wherein the control unit communicates the service related characteristics included in the query to the first customer premise device.

Claim 51 (New) The device of claim 30, wherein the service manager configures performance measurement sessions between the customer premise device and each of the other customer premise devices identified as sharing the same service related characteristics.

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Claim 52 (New) A system comprising:

a plurality of public routers of a service provider network; and
a plurality of customer premise devices coupled to the public routers,
wherein a first one of the plurality of public routers receives a communication from a first one of the plurality of customer premise devices that includes service related characteristics associated with the first customer premise device, queries the other public routers to obtain information about one or more other customer premise devices that share the same service related characteristics as the first customer premise device, and communicates the information obtained about the one or more other customer premise devices to the first customer premise device,

wherein a control unit of the first customer premise device configures the first customer premise device in accordance with the service related characteristics and the information obtained about the one or more other customer premise devices to join the first customer premise device to a shared service.

Claim 53 (New) The system of claim 52, wherein:

the first public router sends a query to each of the plurality of other public routers that includes the service related characteristics associated with the first customer premise device;

each of the other public routers receives the query, identifies customer premise devices coupled to the respective other public routers that have the same service related characteristics as included in the query from the first public router, and sends a response to first public router that includes information associated with customer premise devices identified as sharing the service related characteristics included in the query.

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Claim 54 (New) The system of claim 53, wherein:

each of the other public routers communicates the service related characteristics included in the query to the identified customer premise devices that share the same service related characteristics; and

each of the identified customer premise devices updates the configuration information of the shared service to reflect the addition of the first customer premise device to the shared service.

Claim 55 (New) The system of claim 52, wherein the control unit of the first customer premise device configures performance measurement sessions between the first customer premise device and each of the other customer premise devices identified as sharing the same service related characteristics.

Claim 56 (New) The system of claim 52, wherein the first customer premise device periodically communicates the service related characteristics from the first customer premise device to the first public router.

Claim 56 (New) The system of claim 52, wherein the first customer premise device communicates the service related characteristics from the first customer premise device to the first public router upon a receiving a service configuration update.

Claim 57 (New) The system of claim 52, wherein the first customer premise device establishes a tunnel with at least one of the other customer premise devices identified as having the same service related characteristics.

Claim 58 (New) The system of claim 52, wherein the first customer premise device configures performance measurement sessions between the customer premise device and each of the other customer premise devices identified as sharing the same service related characteristics.

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Claim 59 (New) A method comprising:

communicating, with a first customer premise device of a customer site network, service related characteristics associated with the first customer premise device to a first public router of a service provider network;

receiving, with the first customer premise device, information about at least one other customer premise device that shares the service related characteristics from the first public router, wherein the information about the at least one other customer device is obtained by the first public router by querying a plurality of other public routers of the service provider network; and

configuring the first customer premise device in accordance with the service related characteristics associated with the first customer premise device and the information obtained about the other customer premise devices to join the first customer premise device to a shared service.

Claim 60 (New) The method of claim 59, wherein configuring the first customer premise device to join the first customer premise device to the shared service comprises establishing a tunnel with at least one of the other customer premise devices identified as having the same service related characteristics to join the customer premise device to a virtual private network.

Claim 61 (New) The method of claim 59, wherein configuring the first customer premise device to join the first customer premise device to the shared service comprises configuring the first customer premise device establish performance measurement sessions between the customer premise device and each of the other customer premise devices identified as sharing the same service related characteristics.